Workshop 6 Exercise

Your task for this workshop is to correct the fault in the `addNode` method. To do this, you must change line 68 of `Graph.java` from

```
if (_allocated <= _order) {
```

to

```
if (_allocated < _order) {
```

Workshop 6 Exercise

Your task for this workshop is to correct the fault in the `deleteNode` method. To do this, you must change line 108 of `Graph.java` from:

```
isEdge = _matrix[nIndex][i] || _matrix[i][nIndex];
```

to

```
isEdge = isEdge || _matrix[i][nIndex];
```

Workshop 6 Exercise

Your task for this workshop is to add the following `isNode` method to `Graph.java`:

```
/**
 * Return true if and only if the node n is a node in the graph.
 */
public boolean isNode(int n)
{
  boolean result = false;

  for (int i = 0; i < _nodes.length; i++) {
    if (_nodes[i] == n) {
        result = true;
        break;
    }
  }

  return result;
}
```

Workshop 6 Exercise

Your task for this workshop is to add the following `isEdge` method to `Graph.java`:

```
/**
 * Return true if and only if the edge (m,n) is an edge in the graph.
 */
public boolean isEdge(int m, int n)
{
  boolean result = false;

  int mIndex = _lookup(m);
  int nIndex = _lookup(n);

  result = _matrix[mIndex][nIndex];

  return result;
}
```

Workshop 6 Exercise

Your task for this workshop is to add a test that finds the fault in the `addNode` method. This can be done by adding the following test to the end of the test script `Driver.java`:

```
//test 6: test that only 5 nodes are permitted
g.addNode(3);
g.addNode(4);
g.addNode(5);
g.addNode(6);
assert !contains(g._nodes, 6);
```

This test should fail on the initial version, yet pass on the updated version.

Workshop 6 Exercise

Your task for this workshop is to add a test that finds the fault in the `deleteNode` method. This can be changing line 28 of the test script `Driver.java` from:

```
g.deleteNode(1);
```
to

```
g.deleteNode(2);
```

Workshop 6 Exercise

Your task for this workshop is to modify the test script to use the `isNode` method. That is, in the file `Driver.java`, you must change every instance of:

```
contains(g._nodes, XX)
```

to:

```
g.isNode(XX)
```

where `XX` is an argument.

Workshop 6 Exercise

Your task for this workshop is to modify the test script to use the `isEdge` method. That is, in the file `Driver.java`, you must change every instance of:

```
g._matrix[mIndex][nIndex]
```

to:

```
g.contains(M, N)
```

where `M` and `N` are the nodes representing the edge.